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► **To cite this version:**

Michel Aurnague. About asymmetry of motion in French: some properties and a principle. Michel Aurnague; Dejan Stosic. The semantics of dynamic space in French: descriptive, experimental and formal studies on motion expression, 66, John Benjamins, pp.31-66, 2019, Human Cognitive Processing, 9789027203205. 10.1075/hcp.66.01aur . hal-02022859

HAL Id: hal-02022859

<https://hal.science/hal-02022859>

Submitted on 29 Jul 2022

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About asymmetry of motion in French:

Some properties and a principle

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This chapter addresses the issue of “goal bias” and asymmetry of motion in French. The semantics of verbs of strict autonomous motion is first captured through their spatio-temporal schemata defined in terms of change of basic locative relation and change of placement. The possibility, for the verbs, of appearing in implicit landmark constructions, their association with a spatial PP having an opposite “polarity” and the prepositions’ contribution to dynamic spatial descriptions are successively reviewed in order to identify the most important properties of asymmetry of motion in French. Several of these properties seem to ensue from the spatio-temporal structure of motion events. A pragmatic principle is also highlighted, which is likely to favor the emergence of goal bias in language.

Keywords: goal bias, strict motion verbs, implicit landmark, opposite polarities, prepositions, event structure

1. Introduction: From goal bias to asymmetry of motion

Highlighted in linguistics from the mid-1980s (Ikegami 1987), the systematic study of asymmetry of motion events in language and cognition has grown significantly over the last ten to fifteen years, specifically in the field of psycholinguistics and cognitive psychology (e.g. Lakusta and Landau 2005; Regier and Zheng 2007). Linguists’ and cognitive psychologists’ interest focused mainly on the phenomenon known as

“importance of goals” or “goal (path) bias”, that is to say our particular proclivity to pay attention to the “goal” of a motion rather than to its (possible) “source” when conceptualizing and describing a dynamic spatial event (this phenomenon is also targeted by terms and concepts such as “attention to endpoints” or “goal-over-source-principle”). In language, this bias does not only show up as a greater recourse to goal-oriented markers in speakers’ productions. Most of the time, it also implies that a more extended and elaborate set of linguistic means is available to identify goals of motions.

Although mentioned in cross-linguistic research (Bourdin 1997; Kopecka and Ishibashi 2011), goal bias and, more generally, asymmetry of motion have been little studied in French. This chapter intends to partly fill this gap by focusing on the description of *strict autonomous* (i.e. non-explicitly caused) *motions*. In French, this kind of displacement is often expressed by intransitive or “indirect” transitive verbs (e.g. *aller* + *Prep* ‘to go + Prep’, *arriver* ‘to arrive’, *entrer* ‘to go into, to enter’, *partir* ‘to leave’, *se rendre* ‘to go to’, *sortir* ‘to go out’). Some constructions associating a directional or “manner of motion” predicate with an accurate spatial PP can also refer to such eventualities (see Section 2). The analysis carried out in this chapter tries thus to bring to light the *main* formal and semantic evidence for the asymmetry of motion as arising in the description of strict (autonomous) displacements. Several of the properties highlighted have been checked in a corpus drawn up from the textual base Frantext, that also provided the attested examples included in the text (see the introductory chapter for information on Frantext, and the Appendix for more details on the corpus analysis).

The chapter starts by setting out the theoretical framework used for the analysis of strict motion in French and, in particular, for capturing the semantic content of verbs (Section 2). A first asymmetry is emphasized at this stage. The possibility, for the different verbs, to appear in implicit

landmark constructions and their association with a PP having an opposite “polarity” is then studied (Section 3). This evidences two additional features of asymmetry of motion. Section 4 proposes an analysis of the prepositional system of French within the theoretical approach adopted for dynamic space. The main properties (eight in total) through which asymmetry is manifested in descriptions of strict displacements are then summed up (Section 5) and their possible links are investigated. One of these properties—related to the very structure of events in language and cognition—proves to be more basic and to condition several of the manifestations of motion asymmetry in French. Finally (Section 6), it is hypothesized that, beyond its “imprints” in linguistic structures, the preference for goal-oriented descriptions of dynamic space (as revealed by speakers’ productions) may be partly due to a specific pragmatic principle. This principle can be seen as a bridge between the cognitive and linguistic foundations of goal bias and, more generally, of the asymmetry discussed here.

2. A semantic framework for dynamic space in French

The theoretical framework within which the expression of dynamic space in French is tackled was set out in (Aurnague 2011). Although useful for delimiting the role of locative prepositions in descriptions of dynamic space (see Section 4), it was originally designed to characterize and classify verbs of strict (autonomous) motion.

This framework tries to overcome two shortcomings present in many studies on dynamic space. First, it avoids directly characterizing verbs of strict motion in terms of their aspectual behaviour (inner/lexical aspect, *Aktionsart*: Smith 1991; Vendler 1957). Scholars commonly draw a distinction between manner of motion verbs and verbs that denote a motion in the strict sense without providing precise and operational spatial criteria

but resorting, instead, to aspectual properties (atelicity vs. telicity). Second, the spatial (rather than aspectual) concepts brought out in the classification are defined as precisely as possible, verifying their consistency with other notions involved in dynamic and static space. For instance, the observation of the landmarks¹ or reference/ground entities accepted by the preposition *à* ('at') in its static locating use (Vandeloise 1988) has shown that a sofa, a carpet or a bucket are linguistically categorized as objects —*Max est sur le/??*au canapé* 'Max is on/at the sofa'; *Max est sur le/??*au tapis* 'Max is on/at the carpet'; *Le chat est dans le/??*au seau* 'The cat is in/at the bucket'— rather than as locations,² as this use of *à* selects "specified locations" (Aurnague 1996, 2004): *Max est au village/hangar* 'Max is in the village/shed; *Le chat est au grenier* 'The cat is in the attic'. Consequently, it will be hard to claim that utterances such as *Max est venu sur le canapé/tapis* 'Max came onto the sofa/carpet' or *Le chat est entré dans le seau* 'The cat went into the bucket' involve any "change of location/place".³

¹ According to Langacker (1987) and Vandeloise's (1991) terminology. The locating or reference entity of a static or dynamic spatial relation is called "ground" by Talmy (1985, 2000). The located element will be designated "target" (Vandeloise 1991), a term which is equivalent to Langacker's (1987) "trajector" and Talmy's (1985, 2000) "figure".

² A location is a material entity determining a space portion, which is fixed in a given frame of reference. This definition follows from the study of *à* and of French Internal Localization Nouns (ILNs: e.g. *avant* 'front', *gauche* 'left', *intérieur* 'interior', *bord* 'edge', *centre/milieu* 'center/middle', *extrémité* 'extremity'). It has also benefited from the analysis of Basque data (ILNs; locative and possessive "genitives") (Aurnague 1996, 2004).

³ From this point of view, the approaches which usually provide the landmark of a static or dynamic description with a space portion or region (often called place/location; e.g. Jackendoff 1983, 1990) give too much weight to the former entity (landmark) in the semantics of the prepositions (a function applies to the

In this classification, motion processes are characterized by means of the notions of *change of placement* and *change of basic locative relation*. The former concept distinguishes verbs denoting a change of placement within the terrestrial/earth's reference framework —e.g. *avancer* 'to advance, to move forward', *foncer* 'to tear along', *glisser* 'to slide (along)', *grimper* 'to climb', *marcher* 'to walk', *patrouiller* 'to patrol', *zigzaguer* 'to zigzag along'— from predicates describing a movement/motion restricted to the target's (i.e. "located" entity's) own frame of reference as is the case with "changes of posture" —e.g. *s'asseoir* 'to sit down', *s'agenouiller* 'to kneel down', *s'étirer* 'to stretch', *se lever* 'to get up', *se recroqueviller* 'to huddle', *se (re)tourner* 'to turn over, turn round'. The notion of basic locative relation stems from Boons (1987) who used it to differentiate between verbs of action on entities such as *adosser* 'to stand/lean (the back) against', *défricher* 'to clear' or *dévisser* 'to unscrew, to undo' and verbs such as *chasser* 'to chase out/away', *enfourner* 'to put in the oven/kiln' or *hisser* 'to hoist'. Whereas one can put the back of a cupboard (*adosser*) against a wall with which the cupboard was already in contact (the negated and then asserted relation is *être adossé à* 'to stand (the back) against' and not a basic locative relation such as *être contre* 'to be against'), the eventuality introduced by a verb such as *enfourner* is definitely underlain by the negation and later assertion of the basic locative relation *être dans* 'to be in'.⁴ Verbs of change of placement do not entail, by themselves, any change of basic locative relation with respect to the landmark potentially mentioned

nominal object of the preposition) and reduce the whole range of spatial configurations to the geometrical relation of inclusion. They are, therefore, unable to capture the many functional constraints (e.g. containment, support) relating targets and landmarks which still play an essential role in the behavior of several prepositions (Carlson and van der Zee 2005; Vandeloise 1991).

⁴ A basic locative relation is expressed by a simple or complex preposition/adposition of the language under consideration, here French.

in the sentence (e.g., *Max a marché dans la forêt* ‘Max walked in the forest’), contrary to verbs denoting a true motion (verbs of motion in the strict sense) such as, for instance, *entrer* ‘to go in, to enter’ (negation and assertion of *être dans*; see example (2)). However, the possibility displayed by predicates of motion in the strict sense of combining with a PP headed by the preposition *par* ‘by’ (Aurnague and Stosic 2002; Stosic 2002, 2007) — through the “path” interpretation of the preposition— seems to indicate that a verb such as *se poser* ‘to land, to settle’ does not belong to this category (unlike *entrer*), although it does bring into play a change of basic locative relation (relation of support/contact: *être sur* ‘to be on’):

- (1) (?) *L’oiseau s’est posé sur la*
 the bird be.PRS.3SG land/perch-PTCP on the
 maison par le jardin.
 house by the garden
 ‘The bird landed/perched on the house by/through the
 garden’
- (2) *L’oiseau est entré dans la maison*
 the bird be.PRS.3SG enter-PTCP in the house
 par le jardin.
 by the garden
 ‘The bird went into the house by/through the garden’

The contrasts revealed by the association with a *par*-headed PP can be explained by the fact that the semantics of motion verbs in the strict sense combines the notion of change of basic locative relation **and** that of change of placement. The evaluation of these notions involves two distinct referents: the terrestrial frame of reference for the change of placement and the landmark entity —whether explicitly mentioned or not— for the change of basic locative relation. Moreover, they give rise to a rich range of combinations (see Stosic’s chapter in this volume) as changes of placement do not entail, by themselves, any change of relation (cf. *supra*) and,

conversely, some changes of basic locative relation (e.g. relation of support/contact) do not go together with a change of placement.

The interaction of the concepts just highlighted was studied through the examination of intransitive (or indirect transitive) verbs of French denoting a strict motion (i.e. a change of relation *and* placement), for which a classification was proposed (Aurnague 2011). The verbs analyzed were selected from the list compiled by Laur (1991) who drew on several previous inventories (Boons 1991; Boons et al. 1976; Gross 1975; Guillet and Leclère 1992). The *polarity* of a motion verb in the strict sense depends on the structure of the underlying change of relation: it is initial if this relation is asserted and then negated (“positive” information comes first: $r \cdots \blacktriangleright \neg r$), and final in the symmetrical case (the assertion of the relation follows its negation; final positive information: $\neg r \cdots \blacktriangleright r$).⁵ Moreover, and unlike most approaches that do not clearly define it, a precise content is given to the notion of medial polarity —the assertion of the relation is both preceded and followed by its negation $\neg r \cdots \blacktriangleright r \cdots \blacktriangleright \neg r$ —, from which it ensues that very few verbs or verbal locutions of French really denote a medial change of relation and placement (e.g. *couper par* ‘to cut across’, *passer par* ‘to go through’).

(Aurnague 2011) distinguished eight classes of verbs of change of relation and placement, equally divided between initial and final polarity predicates. The first two classes of motion verbs (initial) are shown in Figure 1. Class 1a expresses an *independent initial change of relation* (e.g.

⁵ The symbol “ $\cdots \blacktriangleright$ ” used here and subsequently indicates the transition from one state (in the present case, a basic (static) spatial relation) to another: $s1 \cdots \blacktriangleright s2$. This transition is an event (e) whose relations with the corresponding states (s1 and s2) can be formally represented in the following way (the relation of “abutment” $\supset\subset$ indicates immediate temporal precedence (Kamp and Reyle 1993)): $s1 \supset\subset e \supset\subset s2$.

The basic locative relation of inclusion/containment (*dans* ‘in’) gives rise to two additional classes (Figure 3) which are, however, symmetrical with respect to polarity (*inclusion/containment-type initial or final changes of relation: sortir* ‘to go out’ vs. *entrer* ‘to go in, to enter’, *pénétrer* ‘to enter, to penetrate’).

a. <i>Sortir</i>	alternative repres.	b. <i>Entrer</i>	alternative repres.
□	□	□	□
e	e	e	e
$r(t,l) \cdots \blacktriangleright \neg r(t,l)$	$r(t,l) \cdots \blacktriangleright r'(t,l)$	$\neg r(t,l) \cdots \blacktriangleright r(t,l)$	$r'(t,l) \cdots \blacktriangleright r(t,l)$
+ ch-plmt	+ ch-plmt	+ ch-plmt	+ ch-plmt
r = incl./cont.		r = incl./cont.	

Figure 3. a. Inclusion/containment-type initial change of relation, b. Inclusion/containment-type final change of relation

Finally, Figure 4 shows *double changes of relation with initial or final saliency*, which are the only processes and verbs to clearly integrate a double change of basic locative relation in the underlying spatio-temporal structure (e.g. *déménager* ‘to move (house)’, *émigrer* ‘to emigrate’ vs. *immigrer* ‘to immigrate’). Another distinctive feature of their meaning stems from the “typing” of the landmarks with respect to which the two changes of relation and placement take place (accommodation/residence, country, homeland, etc.).⁶

a. <i>Déménager, émigrer</i>	b. <i>Immigrer</i>
[.....]	[.....]
e	e
e'	e'
$r(t,l1) \cdots \blacktriangleright \neg r(t,l1) + \neg r(t,l2) \cdots \blacktriangleright r(t,l2)$	$r(t,l1) \cdots \blacktriangleright \neg r(t,l1) + \neg r(t,l2) \cdots \blacktriangleright r(t,l2)$
<u>+ ch-plmt</u>	<u>+ ch-plmt</u>

Figure 4. a. Double change of relation with initial saliency, b. Double change of relation with final saliency

⁶ One of these changes of relation (and placement) seems, nevertheless, to be more “salient” than the other, as the morphological properties of these verbs often indicate (*dé-*, *é-/ex* vs. *im-* prefixes).

A first asymmetry between initial and final motion eventualities immediately emerges when observing the different spatio-temporal schemata just highlighted, but it requires double changes of relation with initial or final saliency (Figure 4) to be left aside. This momentary exclusion is fully justified by the specific semantic content of these verbs (double change of relation, typing of the landmarks: see above).

Proceeding along these lines, one can see that the internal structure of strict initial motions (as depicted in Figures 1a, 1b, 3a) is *centered* on an initial change of basic locative relation *concomitant* with a change of placement. In other words, the subsequent motion possibly expressed by a final spatial PP added to the verb does not belong to the latter's semantic content. Thus, the sentence *Max est parti à l'université à 8 heures* 'Max left for the university at 8 o'clock' is spatio-temporally equivalent to the description in discourse *Max est parti (de chez lui) à 8 heures. Il allait à l'université* 'Max left (home) at 8 o'clock. He was going to the university', in which the subsequent motion corresponds to a backgrounded distinct eventuality. This subsequent motion may indeed not be completely achieved, in spite of a perfective tense being used in the utterance (3).⁷ Several other clues support the idea of centering on the initial change of relation and placement, among which the modification by a temporal PP headed by *en* 'in' (4). Understanding these constructions involves carrying out some kind of reinterpretation or "accommodation", which consists in adding a non-dynamic event that precedes the initial change of relation (e.g.,

⁷ Here is an attestation of this kind of example: *Mercredi dernier, une mère de famille fait appel à la police car sa fille est partie à l'école ce matin-là, mais n'y est jamais arrivée* 'Last Wednesday, a mother called the police because her daughter left for school that morning, but she never got there' (<http://archives.24heures.ch/VQ/LAUSANNE/-/article-2009-01-1387/117-polouestado-retrouvee-errant-dansun-supermarchepriilly>; page accessed in June 2011).

preparation for leaving; *Après l'appel de Luc, Max est parti à l'université en 10 minutes* 'After Luc's call, Max left for the university in 10 minutes'). As can be observed, the subsequent motion (denoted by the final spatial PP) remains outside the temporal measure introduced by *en*, unless the sentence is reinterpreted by substituting *aller/se rendre à* 'to go to' for *partir à*.

- (3) *Max est parti à l'université mais il n'y est jamais arrivé.*
 Max be.PRS.3sg leave-PTCP at the university but
 he NEG-there be.PRS.3SG never arrive-PTCP
 'Max left for the university but he never got there'
- (4) *Max est parti à l'université en 10 minutes.*
 Max be.PRS.3SG leave-PTCP at the university in
 10 minutes
 'Max left for the university in 10 minutes'

The behavior of extended initial changes of relation (e.g. *s'échapper* 'to escape', *s'enfuir* 'to run away', *se sauver* 'to run away'; cf. Figure 1b) does not conflict with the previous statement, although it might seem paradoxical at first sight. Whereas the semantics of these verbs seems to be centered on the initial change of relation and placement—the sentence *Pollux le chien s'est échappé du restaurant* 'Pollux the dog escaped from the restaurant' is true immediately the target left the restaurant—, other facts indicate some ability to refer to the subsequent motion introduced by a final PP. In particular, this subsequent motion is more difficult to deny than in (3): *?Max s'est sauvé/enfui au village mais il n'y est jamais arrivé* 'Max ran away to the village but he never got there'. In (Aurnague 2011), I maintained that while the property of centering on the initial change of relation remains, several semantic features of the verbs under examination (speed, target's attempt to avoid the control exerted by the landmark) can be activated in order to describe a subsequent motion (in Figure 1b, this motion

is materialized by a dotted arrow extending from the initial change of relation and placement).

Contrary to initial predicates, final dynamic verbs are not systematically centered on the (final) change of basic locative relation conveyed in their semantics. Except for the predicates based on inclusion/containment (Figure 3b), the other two categories of verbs previously set out (Figure 2) are indeed made up of a change of placement *preceding* the final change of relation, this non-concomitance being likely to *prevent* the centering on the latter element (change of relation). This is particularly evident for final changes of relation with integrated prior motion (e.g. *aller à*, *se rendre* ‘to go to’, *venir* ‘to come’; Figure 2) that *include* in their semantic content a previous change of placement (prior to the final change of relation). The modification of these verbs by a temporal PP headed by *en* ‘in’ (5) results in the measurement of the previous change of placement (included in the verbal meaning) and, as expected, produces very natural utterances. On the other hand, changes of relation with presupposed previous motion (e.g. *arriver* ‘to arrive’, *aboutir* ‘to end up’, *accéder*, *parvenir* ‘to reach, to get to’; Figure 2a) have a more ambivalent nature and functioning. These verbs only refer to a final change of relation (and placement) —event of arrival, ending (up), etc.— and can in a way be considered as centered on this element. At the same time, although not directly describing a previous change of placement (prior to the final change of relation), the content of these predicates presupposes the existence of such an event (see the part between slashes in Figure 2; in this respect, note that the negation of the final change of relation does not entail the negation of the presupposed prior motion: *Max n’est pas arrivé (à son bureau)* ‘Max did not arrive (at his office)’). This “double game” explains that, while being centered on a final change of relation (and placement), the verbs of this class license the activation of the presupposed part of their meaning in certain circumstances. As often noted, they both fulfill the tests usually used

to single out achievements (e.g. modification by a PP headed by *à* ‘at’: 6) and those corresponding to accomplishments (e.g. modification by an *en*-headed PP: 6). From a spatio-temporal point of view, the “secondary” landmark introduced by a spatial PP headed by *par* ‘by’ can be directly connected to the final landmark of the motion event (7: Aragon-France), or located at some distance from the latter (7: Portugal-France), within the prior trajectory of the target.

- (5) *Max (s')est allé/rendu/venu à l'université*
 Max be.PRS.3SG go/go to/come-PTCP at the university
en 10 minutes.
 in 10 minutes
 ‘Max went/came to the university in 10 minutes’
- (6) *Max est arrivé à l'université*
 Max be.PRS.3SG arrive-PTCP at the university
à 10 heures/en 10 minutes.
 at 10 o'clock/in 10 minutes
 ‘Max arrived at the university at 10 o'clock/in 10 minutes’
- (7) *Les réfugiés sont parvenus en France*
 the refugees be.PRS.3PL reach-PTCP in France
par l'Aragon/le Portugal.
 by Aragon/Portugal
 ‘The refugees got to/reached France via Aragon/Portugal’

Among the eight categories of motion processes previously highlighted (Figures 1–4), final changes of relation with integrated prior motion (Figure 2a) are the most numerous, provided that verbs *and constructions* introducing this kind of process are taken into account. It is, indeed, a well-known fact that some intransitive predicates denoting a simple change of placement can combine with a spatial PP in order to describe a final change of relation and placement (e.g., *Max a couru dans le pré* ‘Max ran into the meadow’; however, note that the interpretation involving a change of relation and placement is only optional). The verbs of

change of placement appearing in these constructions (e.g. *avancer* ‘to advance, to move forward’, *courir* ‘to run’, *déraper* ‘to slip, to skid’, *descendre* ‘to go down’, *dévaler* ‘to tear down’, *foncer* ‘to tear along’, *glisser* ‘to slide’, *ramper* ‘to crawl’, *se traîner* ‘to drag o.s.’) display specific semantic features that have been grouped together under the notion of “tendentiaity” —speed, (intentional) opposition to a force, direction (linear oriented motion), carrying along by a force (Aurnague 2011)—, and a significant proportion of the constructions thus obtained matches the characteristics of final changes of placement with integrated prior motion. A full presentation of the theoretical framework used to analyze the meaning of motion predicates is set out in (Aurnague 2011), including references to the most relevant research on this issue at both the syntax-semantics interface (e.g. Jackendoff 1983, 1990; Levin 1993; Levin and Rappaport Hovav 1992) and the semantic level (e.g. Slobin 2003, 2004; Talmy 1985, 2000).

3. Implicit landmarks and opposite polarities

The uses of French verbs of strict motion in which the landmark of the underlying dynamic process is not explicitly mentioned (either through a nominal description or through a pronoun or an adverbial) have been little studied.⁸ Yet, this kind of construction reveals a clear asymmetry between

⁸ The constructions that associate a motion verb and a direct infinitival clause — and denote a final change of relation and placement— are neglected here (Lamiroy 1983; Aurnague 2011) since the incorporation of the infinitival clause leads to automatically introducing a final reference entity, whether *expressed or not*, which operates as the landmark of both the motion predicate of the main clause *and* the eventuality of the infinitive: *Max est allé retrouver Luc (à l’université)* ‘Max went and joined Luc (at the university)’ vs. **Max est allé* (see below).

initial and final strict motion predicates that can be explained, to a large extent, through the spatio-temporal structure of the corresponding eventualities. Moreover, implicit landmark constructions seem to be closely correlated to another phenomenon, namely the possibility to combine a verb and a spatial PP having opposite polarities (see below). The anaphorization of the landmark of a strict motion process will be examined for the first six categories of verbs set up in Section 2 (Figures 1–3). The specific case of double changes of relation with initial or final saliency (Figure 4) will be tackled at a later stage.

Independent and extended initial changes of relation (e.g. *partir*, *s'en aller* ‘to go away’, *s'échapper* ‘to escape’, *s'enfuir* ‘to run away’) as well as (initial) changes of relation based on inclusion/containment (e.g. *sortir* ‘to go out’) can give rise to implicit landmark constructions (8–10). As indicated in Section 2, the verbs belonging to these classes have a semantic content centered on the initial change of relation (and placement) they introduce. It is, in my view, this property —centering of the process on the change of relation and, therefore, on the landmark— that makes their integration in the implicit construction possible, provided that an accurate landmark, with respect to which the target can be located, is present in the discourse model and that attention is focused on it.⁹

(8) *Il est parti une nuit... en coupant*
 he be.PRS.3SG leave-PTCP one night by clipping

⁹ Without going into details, it should be mentioned that the approach to anaphoric phenomena adopted here is a cognitive one in which a mental discourse representation is constructed and updated from different sources, among which, the “text”/utterance (written or oral production) and the situational context (e.g. Cornish 1999; Kleiber 1994). According to Cornish (1999), (discourse) deixis consists in shifting the addressee’s attention to an element of the universe of discourse (already present in the representation or introduced by the current discourse segment) whereas anaphora refers to an element previously in focus.

simplement à la cisaille les deux rangs de barbelés
 simply with the shear(s) the two rows of barbed wire (s)
de l'enceinte de son oflag. (R. Abellio, *Heureux les pacifiques*, 1946)
 of the fence of his oflag
 'He left one night... by simply clipping through the two rows
 of barbed wire of the fence of his oflag'

- (9) *Au deuxième [coup de revolver], il y a eu*
 at the second [gun shot] there PRO has have-PTCP
des cris, un blessé, et tout le monde
 some cries one injured and all the people
s'est enfui. (A. Camus, *La Peste*, 1947)
 be.PRS.3SG run away-PTCP
 'At the second [gun shot], there were cries, an injured person,
 and everybody ran away'

- (10) *L'homme est sorti, et lentement*
 the man be.PRS.3SG go out-PTCP and slowly
s'est éloigné. (M. Genevoix, *Ceux de 14*, 1950)
 be.PRS.3SG go away-PTCP
 'The man went out, and slowly moved away'

Final verbs of strict motion display a more contrasting panorama. While the predicates involving the inclusion/containment relation license, here again, the implicit landmark construction (e.g., *Qui donc est entré ?* 'Who entered?' (P. Claudel, *La J.F. Violaine 2. version*, 1901)), other categories of verbs do not seem to give rise to such a use. This is clearly the case for final changes of relation with integrated prior motion (e.g. *aller + Prep* 'to go + Prep', *se rendre* 'to go to'). As highlighted in Section 2, the semantic content of these verbs is not centered on the (final) change of relation they introduce because it includes a change of placement preceding this change of relation (see Figure 2a). This event structure has immediate consequences because the landmark with respect to which the final change of relation will take place is often unavailable during the prior change of

placement. More precisely, if the situational context (11) or the co-text (13) make it possible to situate a change of placement within an encompassing spatial environment, the final landmark of the whole motion eventuality is usually not focused (as a *goal* or *final* landmark) and, sometimes, not present in the universe of discourse either during this phase of the process. Thus, the final landmark has to be explicitly identified in the utterance (12, 14).¹⁰

- (11) *Max marche d'un pas décidé (sur le boulevard).*
 Max walk-PRS.3SG with a pace steady (on the boulevard)
 'Max is walking at a steady pace (on the boulevard)'
- (12) *Max va à la mairie d'un pas décidé.*
 Max go.PRS.3SG at the city hall with a pace steady
 'Max is going to the city hall at a steady pace'
- (13) *Aussitôt arrivé sur le chemin, Max a couru à grandes enjambées.*
 as soon as arrive-PTCP on the path Max have-PRS.3SG
 run-PTCP at big strides
 'As soon as he reached the path, Max broke into a swift run'
- (14) *Aussitôt arrivé sur le chemin, Max s'est rendu au village à grandes enjambées.*
 as soon as arrive-PTCP on the path Max be-PRS.3SG
 rendu au village à grandes enjambées.

¹⁰ Although it follows from the spatio-temporal structure of the verbs, the need for overtly mentioning the landmark is probably encoded in their very constructional properties. In French, this syntactic-semantic rule seems to apply uniformly and the final landmark thus has to be expressed (via a clitic pronoun) even when it is present and highlighted in the discourse: *C'est une très belle ville. Max *est allé/y est allé.* 'It is a very nice city. Max went/went there'; *Demain le musée sera ouvert. Nous pourrions *aller/y aller* 'Tomorrow the museum will be open. We could go/go there'. The same constraint holds for constructions with grammatical ellipsis: *Max est allé à l'université. Luc *est allé/y est allé aussi* 'Max went to the university. Luc went/went there too'.

go to-PTCP at the village at big strides
 ‘As soon as he reached the path, Max strode quickly on to the village’

However, final changes of relation with integrated prior motion license implicit landmark constructions in two specific cases: when the verb’s meaning needs the strict motion to be contemplated from the (final) landmark of the process (deixis, perspective point: e.g. *venir* ‘to come’ (15) and the more colloquial *s’abouler* ‘to come’, *s’amener* ‘to come along’ or *rappliquer* ‘to come, to turn up’);¹¹ when it involves world knowledge and situational data, and indicates, for instance, that the target is returning to its habitual location (e.g. *rentrer* ‘to come/go back, to come/go (back) home, to return (home)’ (16)). These different configurations require the landmark with respect to which the final change of relation is evaluated to be already known during the prior change of placement.

(15) *je voulais encore dire à monsieur le président*
 I want-PST-1SG also tell to mister the president
que M. Sanasoff est venu deux fois depuis
 that Mr Sanasoff be.PRS.3SG come-PTCP twice since
samedi. (G. Duhamel, *La Passion de Joseph Pasquier*, 1945)
 saturday
 ‘I also meant to tell the President that Mr Sanasoff has come twice since last Saturday’

(16) *Tiens, c’est Max. C’est à cette heure-ci qu’il*
 ah there’s Max. It is at this hour that he
rentre !

¹¹ In line with (Wilkins and Hill 1995), French only encodes *final* perspective in the domain of strict motion processes. Contrary to what is often stated, predicates like *partir* ‘to go (away), to leave’ or *aller + Prep* ‘to go + Prep’ do not have a “deictic” semantics in the sense that they in no way require the speaker and/or the interlocutor to be located near the —underlying or added— initial landmark (at some point in time) or to have a particular relation with this entity.

return home-PRS.3SG

‘Ah, there’s Max. So this is the time he returns home!’

Final changes of relation with presupposed prior motion (e.g. *arriver* ‘to arrive’, *aboutir* ‘to end up’, *accéder*, *parvenir* ‘to reach, to get to’) can also be problematic in implicit landmark constructions. Their proclivity to denote a final change of relation (and placement) and the centering on the (final) landmark that ensues should pave the way for the anaphorization of the latter entity. This is, indeed, what happens with the verb *arriver* (17). But their ambivalent behavior pointed out in Section 2 shows up here again, with the predicates *aboutir*, *accéder* and *parvenir* hardly licensing implicit landmark descriptions. Unlike *arriver*, the meaning of these verbs includes specific components and constraints —difficulties/obstacles, guidance, (lack of) intention to reach the landmark— that result in giving a particular saliency to the presupposed prior motion (preceding the final change of relation) and in blocking their integration in implicit constructions (Aurnague 2015).¹²

- (17) *Alors le maire est arrivé et il*
then the mayor be.PRS.3SG arrive-PTCP and he
a fait trois grands saluts de
have.PRS.3SG make-PTCP three big bows with

¹² To a certain extent, the saliency of the change of placement brings *aboutir*, *accéder* and *parvenir* closer to final changes of relation with integrated prior motion which, as we saw, only appear in implicit landmark constructions in a restricted number of cases (deictic content, recourse to world knowledge). However, the role of prior motion in the rejection of implicit uses is probably different here (it is not really a matter of unavailability of the final landmark during the prior motion) and, for some of the verbs, it is likely to relate to differences in degree of semantic transitivity. From this point of view, *accéder* and *parvenir* can be considered closer to *atteindre* ‘to reach’ than *arriver* (see (Hopper and Thompson 1980) and (Sarda 1999)).

tout le corps. (M. Barrès, *Mes cahiers*, t. 1, 1898)

whole the body

‘Then the mayor arrived and made three low bows’

From the eight classes of verbs examined up to now, it appears that initial predicates of strict motion uniformly integrate the implicit landmark construction because of their *centering* on the change of relation (and placement) and, thus, on the associated spatial landmark—which, of course, has to be present in the discourse model. On the other hand, implicit uses are not systematic for final dynamic processes which are not always centered on the (final) change of relation they refer to, whether they directly incorporate a previous change of placement in their spatio-temporal structure or presuppose the existence of such an element and make it salient. However, some properties and mechanisms such as *deixis/perspective point* and *world knowledge* can sometimes counterbalance the non-centering on the final change of relation and make the (final) landmark available during the previous change of placement. An additional parameter is likely to condition implicit landmark constructions. It concerns the last two categories of dynamic spatial processes analyzed in this work, namely double changes of relation with initial and final saliency (e.g. *déménager* ‘to move (house)’, *émigrer* ‘to emigrate’ vs. *immigrer* ‘to immigrate’). Here, it is the landmarks’ *typing* entailed by the verbal meaning (see Section 2) that makes implicit uses possible. But this is a quite different situation as the descriptions obtained do not really require referential anchoring (with respect to well identified landmarks) and occur very easily in plural or generic descriptions:

(18) *Max a déménagé (de nombreuses fois dans sa vie).*

Max have.PRS.3SG move house-PTCT (many times in his life)

‘Max has moved house (many times in his life)’

(19) *Celui qui immigre découvre*

the one REL immigrate-PRS.3SG discover-PRS.3SG

un nouveau monde.

a new world

‘Anybody who immigrates discovers a new world’

The asymmetry between initial and final verbs of strict motion brought to light by implicit landmark constructions is all the more interesting since it correlates, to a large extent, with another syntactic-semantic property. Thus, the association of a dynamic verb and a spatial PP with opposite polarities seems to be conditioned by the possibility for the verbal unit to give rise to the implicit landmark construction. Corpus data reflect this correlation and include descriptions with “opposite” verbs and PPs for almost all of the categories previously mentioned (20–25),¹³ while this kind of construction is nearly absent for the verbs that do not accept implicit uses (e.g., **Max est allé/s’est rendu de Rennes* ‘Max went from Rennes’; **Max a abouti du carrefour* ‘Max ended up from the crossroads’; ??**Max est parvenu de Toulouse* ‘Max got from Toulouse’).

(20) *notre cher président du conseil, aussitôt après sa chute,*
our dear president of council straight after his fall
est parti à la Sierra avec un fusil... (A.
Malraux, *L’Espoir*, 1937)

be.PRS.3SG leave-PTCP at the Sierra with a gun
‘our dear prime minister, straight after his fall, left for the
Sierra with a gun...’

(21) *Le traître, protégé de l’état-major, s’est*
the traitor protected by the staff be.PRS.3SG

¹³ Inclusion/containment-type final changes of relation constitute the only exception to the correlation claimed (e.g., ??**Max est entré de la cour* ‘Max went in from the yard’). This peculiar behavior of *entrer* is likely to follow from two main factors: the fact that this verb (like *sortir* ‘to go out’) is especially centered on the landmark it introduces and, without being deictic, often implies a certain closeness to this entity; the importance of certain “post-states” in relation to “pre-states”.

- enfui* à *Londres...* (G. Clémenceau, *Vers la réparation*, 1899)
run away-PTCP at London
‘The traitor, protected by the staff, ran away to London...’
- (22) *il est sorti tout seul dans la plaine...* (H. Barbusse, *Le Feu*, 1916)
he be.PRS.3SG go out-PTCP alone in the plain
‘he went out alone in(to) the plain...’
- (23) *il est venu de Rennes avec moi.* (Villiers de L’Isle-Adam, *Contes cruels*, 1883)
he be.PRS.3SG come-PTCP from Rennes with me
‘he came from Rennes with me’
- (24) *Il est arrivé ce matin de Toulouse où il a échappé de justesse à la gestapo.* (R. Vailland, *Drôle de jeu*, 1945)
he have.PRS.3SG escape-PTCP just to the gestapo
‘He arrived this morning from Toulouse where he narrowly escaped the gestapo’
- (25) *Samba Cissé a immigré du Sénégal...*
(Samba’s film synopsis)
Samba Cissé have.PRS.3SG immigrate-PTCP from Senegal
‘Samba Cissé immigrated from Senegal...’
(<http://www.linternaute.com/cinema/film/1782520/samba/>;
page accessed in April 2015)

The convergence of the strict motion verbs associating with an opposite spatial PP and the predicates that can be used without the landmark of the dynamic process being explicitly mentioned is not really coincidental: it indicates that the change of relation and placement expressed in the verb's semantics has to be implied (in spite of the landmark not being mentioned) for a PP with opposite polarity to be added.

4. Spatial prepositions from a dynamic viewpoint

The study of strict motion in French cannot be limited to the category of verbs and has to take into account another important element in the expression of dynamic space, namely prepositions. Leaving aside the complex geometrical and functional content of locative adpositions (Aurnague 2004; Aurnague & Vieu 1993; Carlson & van der Zee 2005; Vandeloise 1991), this section presents a brief panorama of the main prepositions involved in strict motion descriptions of French, in the light of the concepts previously pinpointed: change of basic locative relation and change of placement (see Section 2). It specifically aims at determining the contribution of spatial prepositions to the construction of dynamic eventualities (in terms of the two concepts highlighted) and the possible asymmetries arising from the distribution and use of these markers. This incursion into the prepositional domain starts with the expression of final changes of relation (and placement), before tackling initial dynamic processes (for reasons of space, medial changes of relation and placement will only be touched upon). Along the way, the prepositional marking of simple changes of placement is also mentioned.

In French, the most common way of expressing a final change of relation and placement consists in associating a static preposition (e.g. *à* ‘at’, *dans* ‘in’, *sur* ‘on’) or prepositional locution (e.g. *à l’arrière de* ‘at the back of’, *au bord de* ‘at the edge of’, *à l’extérieur de* ‘outside of’) with a verb of change of relation and placement, either initial or final (see Section 2), or sometimes a simple change of placement (see the notion of “tendentiaity” in Section 2 and (Aurnague 2011): *Max s’est rendu/est venu dans le centre-ville* ‘Max went/came to the town center’; *Max a couru à l’arrière du bâtiment* ‘Max ran at/to the back of the building’). Final motion predicates like *se rendre* ‘to go to’ or *venir* ‘to come’ in the first of the two examples, are very instructive about what goes on in such constructions.

Because a *final change of relation and placement* underlies the semantics of the verbs at issue (see Figure 2a), this verbal element is typically waiting for an adposition that conveys the same notion (e.g. *come + to* in English). In other words, and although it may appear pretty simple at first sight, I claim that the instantiation or matching of the change of relation denoted by the verb ($\neg r \dots \blacktriangleright r$) with a static locative relation (e.g. $r1$) is not a straightforward operation. Rather, the presence of a change of placement preceding the final change of relation in various classes of (final) motion predicates (Figure 2),¹⁴ and the knowledge that the final configuration is not yet active during this previous motion since the target entity remains in the state $\neg r$ throughout it, have facilitated the *reconstruction* of the change of relation by negating the semantic content of the static preposition (previous state: $\neg r1$) and simultaneously processing this static relation ($r1$) as the “positive side” of the final change. Verbs *and* constructions characterized as changes of relation with integrated prior motion constitute the largest category among predicates of strict motion (see Section 2) and they probably played a non-trivial part in the (re)use of static prepositions for referring to final changes of relation (in French as well as in other languages, specifically “verb-framed” ones (Talmy 1985, 2000)). In any case, this final interpretation of static prepositions is now entrenched in the very structures of language (encoding by a syntactic-semantic rule) so that even an initial verb like *sortir* ‘to go out’, whose semantic content consists

¹⁴ Whether this change of placement is fully integrated in the predicate’s semantic content (final change of relation and placement with integrated prior motion; cf. Figure 2a) or is a presupposed part of its spatio-temporal structure (final change of relation and placement with presupposed prior motion; Figure 2b). Concerning the importance of the previous change of placement and the associated state evoked in the following, see the concept of “extended change of state” in (Rothstein 2004: 106, 155).

in the assertion and following negation of the relation *être dans* ‘to be in’, requires the preposition *dans* ‘in’ in an associated spatial PP to receive a final interpretation: *Max est sorti dans la cour* ‘Max went out into the yard’.¹⁵ It should be emphasized that not all static spatial prepositions are equivalent with respect to changes of relation and changes of placement (see Section 2 and Aurnague (2011)): while most of them denote both changes when integrated in an appropriate construction (e.g. *dans* ‘in’, locating use of *à* ‘at’, prepositional locutions headed by *à*), others only introduce a change of relation (without a concomitant change of placement; e.g. *sur* ‘on’, routine-based interpretation of *à* ‘at’ (Vandeloise 1988)).

Before tackling the adpositional expression of initial changes of relation, let me say a few words about French prepositions conveying a simple change of placement (without any change of relation), be it real or “fictive” (the present work is not concerned with fictive motion, but see (Cappelli 2013; Talmy 2000) and Cappelli’s contribution in this volume). Two main groups of prepositional markers are involved in the expression of changes of placement. The markers belonging to the first group (*à travers* ‘through’, “imprecise” localization use of *par* ‘through’ (Stosic 2002, 2007)

¹⁵ This is all the more interesting as the spatial PP associated with *sortir* does not introduce any independent or extended motion —following the initial change of relation (and placement)— that could be responsible for the reinterpretation of the preposition as a final change of relation (see the discussion on independent and extended initial changes of relation in Section 2). Additionally, it should be noted that, according to the above assumption, the (re)use of static spatial prepositions as initial changes of relation has not been possible because the spatio-temporal schema of initial predicates is centered on a change of relation and placement (see Section 2) and does not *include* a following motion (with an associated extended state consisting in the negation of the initial spatial configuration).

and, more peripherally, *le long de* ‘along’ and *autour* ‘around’¹⁶) allow the speaker to refer to one or more targets whose motion is confined to the landmark entity; no change of basic locative relation occurs with respect to it (26–27). The notion of change of placement that underlies these prepositional elements leads to the rejection of static descriptions of the form *être* + PP ‘to be + PP’ involving a single “non-extended” target, whereas equivalent descriptions with “topological” or “projective” prepositions sound acceptable: **Max est à travers le bois* ‘Max is through the wood’ vs. *Max est dans le bois* ‘Max is in the wood’; ??*La balle est le long du mur* ‘The ball is along the wall’ vs. *La balle est contre/devant le mur* ‘The ball is against/in front of the wall’.

(26) *Max a couru/marché à travers le bois.*
 Max have.PRS.3SG run/walk-PTCP through the wood
 ‘Max ran/walked through the wood’

(27) *La balle de tennis a roulé le long du mur.*
 the ball of tennis have.PRS.3.SG roll-PTCP along the wall
 ‘The tennis ball rolled along the wall’

The second group of prepositions that involves the notion of change of placement includes directional markers such as *vers* ‘towards’ (“proximal”, non-directional, uses of this preposition are left aside) and *dans la/en direction de* ‘in the direction of’. Although the notion of direction is not confined to dynamic situations (Aurnague 2004), here we are primarily interested in the numerous uses of these markers underlain by

¹⁶ Note that *le long de* and *autour* are not as closely related to the notion of change of placement (real or fictive) as *à travers* and the imprecise use of *par*. Although they can appear in dynamic descriptions, the former items are originally static: *La corde est le long du mur* ‘The rope is along the wall’; *La corde est autour du pilier* ‘The rope is around the pillar’; **La corde est à travers la cour* ‘The rope is through the yard’.

motion.¹⁷ As (28) shows, the prepositions or prepositional locutions at issue do not imply any change of basic locative relation with respect to the landmark introduced (except, perhaps, for distance). Another illustration of this lack of final change of relation is provided by the faculty to select “pure” directions (29). As the notion of change of relation is not involved in the semantics of these markers, I exclude the term of “final polarity” (see the definition of polarity in Section 2) and prefer, instead, to speak of “prospective” direction (as opposed to “retrospective” or backward oriented directions).

- (28) *Max a couru*
 Max have.PRS.3SG run-PTCP
vers le/dans la direction du/en direction du
 towards the/in the direction of the/in direction of the
bois puis a tourné à gauche
 wood then have.PRS.3SG turn-PTCP at left
vingt mètres avant (le bois).
 twenty meters before (the wood)
 ‘Max ran towards/in the direction of the wood and then
 turned left twenty meters before it’
- (29) *Max a marché vers le/en direction du*
 Max have.PRS.3SG walk-PTCP towards the/in direction of the
Sud durant plusieurs jours.
 south for several days
 ‘Max walked towards/in the direction of the south for several
 days’

The prepositional marking of final displacements differs in two ways from that of initial changes of relation and placement. First, it is a well-known fact that, in French, initial strict motions are expressed by only one

¹⁷ A real or fictive change of placement is only compulsory when the verb does not introduce some kind of direction (i.e., when it is not a verb like *se tourner/être tourné* ‘to turn/be turned’).

preposition —*de* ‘from’—, in contrast with the wide range of static prepositions that appear in descriptions of final changes of relation and placement (see above).¹⁸ But a second property has to be highlighted, which is almost always ignored: the preposition *de* combined with a verb involving some kind of spatial dynamicity does not, in itself, refer to any motion of the target. Its syntactic-semantic role simply consists in indicating the initial polarity of a change of relation, *which is not systematically a basic locative relation* (cf. Section 2 and (Boons 1987)). This preposition can thus appear with predicates that neither denote a change of basic locative relation nor a change of placement. In (30–31), for instance, the basic locative relation (*être sur* ‘(to be) on’ between the slab and the ground or Max and the seat is not necessarily modified as a result of the process. This is because the relations underlying the verbs are complex (i.e. not basic: *être vissé à* ‘to be screwed on’, *être attaché à* ‘to be fastened to, to be tied to’).

- (30) *Max a dévissé la plaque du*
 Max have.PRS.3sg unscrew-PTCP the slab from the
sol.
 ground
 ‘Max unscrewed the slab from the ground.’
- (31) *Max s’est détaché du siège.*
 Max be.PRS.3SG unfasten-PTCP from the seat

¹⁸ In the present study, the prepositions *depuis* ‘since, from’ and *jusque* ‘(up) to, as far as’ are not analyzed because, although they can apply to situations combining a change of relation and a change of placement, they include the notions of measure and distance in their semantic content. From this point of view, the sentence *Max a couru jusqu’à la mairie* ‘Max ran as far as the town hall’ does not imply *Max a couru à la mairie* ‘Max ran to the town hall’. Even when the verb denotes a change of relation and placement, these prepositions seem to underline the additional notion of measure/distance: *Un médecin est venu depuis l’hôpital* ‘A doctor came (all the way) from the hospital’.

‘Max unfastened himself from the seat’

Therefore, *de* indicates the initial polarity of a change of relation whose additional properties depend on the verb with which the preposition goes. Thus, the (initial) change of basic locative relation and change of placement denoted by the sentence *Max est parti de son bureau* ‘Max left his office’ is strictly ascribable to the verb’s semantics, not to the preposition *de* that only introduces the landmark with respect to which the initial change of relation occurs.

Overall, the prepositional system of French considered in the light of the two concepts of change of basic locative relation and change of placement sketches the following picture (summarized in Table 1). First, there is no preposition expressing, on their own, a final change of relation and placement. Rather, static spatial prepositions combined with a strict motion predicate are turned into a final change of relation, to which a concomitant change of placement is possibly added depending on the nature of the prepositional marker. Secondly, some categories of prepositions (e.g. *à travers* ‘through’, imprecise use of *par* ‘through’, *vers* ‘towards’) seem to be based on a simple change of placement (real or fictive), without any change of relation being involved. Finally, only one preposition is available for referring to initial motions (*de* ‘from’) but its function is limited to indicating the (initial) polarity of the change of relation conveyed by the verb, a change of relation which is not always basic and does not necessarily go with a change of placement. In other words, *de* does not itself entail any motion of the target, be it in the *strict sense* (change of basic locative relation and change of placement) or in the *weak sense* (change of placement). More generally, it appears that none of the categories of prepositions previously reviewed include, in their constituent semantic content, both a change of relation and a change of placement, that is to say a strict motion event. Indeed, only medial prepositions that are not dealt with here (path interpretation of *par* ‘by’, *via* ‘via’; cf. Section 2 for a definition

of medial polarity), really involve these two concepts in their meaning and thus refer to a true displacement (Aurnague and Stosic 2002; Stosic 2002, 2007).

Table 1. Prepositions of French and changes of relation and placement

Preposition(s)	Change of placement	Change of <i>basic locative</i> [polarity of change]	of <i>relation</i> of the
Static prepositions	-	-	
Dynamic use of static prepositions	+/- (depending on the preposition)	+	[final]
<i>A travers</i> , “imprecise localization” <i>par</i>	+	-	
<i>Vers</i> , <i>dans la/en direction de</i>	+	-	
<i>De</i>	-	-	[initial change of relation, not necessarily basic]
“Path interpretation” <i>par</i> , <i>via</i>	+	+	[medial]

5. Listing and linking the properties

As noted at the beginning of this chapter, most of the recent work on the asymmetry of motion events in language and cognition has focused on the strong tendency to give greater importance to the expression of the “goal” with respect to that of the “source” when describing a displacement process (or in presence of other types of eventualities: change of possession, change of state, etc.): e.g. greater resort to goal markers and constructions, higher precision of lexemes and morphemes referring to the goals. The authors of these studies were thus induced to highlight the “importance of goals” (Lakusta and Landau 2005), the “attention to endpoints” (Regier and Zheng 2007), the “goal (path) bias” (Lakusta and Landau 2005; Stefanowitsch and Rohde 2004), echoing Ikegami’s (1987) “goal-over-source principle”. In contrast, I prefer to speak of asymmetry/dissymmetry of initial and final

changes of relation (and placement) because this characterization accounts for observations —such as the systematic possibility of implicit uses for initial but not final changes of relation (cf. Section 3 and below)— that, to my mind, cannot be satisfactorily reduced to the mere idea of predominance of the goal. In order to illustrate the various forms that the asymmetry of initial and final changes of relation takes in French, I now synthesize the main observations I was led to make in this chapter and in previous work (Aurnague 2011). These observations include verbs and prepositions, considered separately or through their interactions. This list —four elements of which go two by two— is not intended to be exhaustive though it probably contains the most significant components of asymmetry of motion in French. After setting out the various facets of asymmetry, I highlight some of their connections and show the particular role played by one of them (cf. Figure 5).

a1. As shown in Section 3, the predicates of initial change of relation and placement can systematically appear in *implicit landmark constructions* (without a pronominal marker) whereas only some of the final predicates (those based on deixis, world knowledge and typing or centered on the final change of relation) can give rise to such constructions.

a2. The second observation (Section 3) is closely related to the first one: while every initial change of relation and placement can combine with a PP having an *opposite polarity* (in the absence of an initial PP), this does not hold true for final changes of relation and placement because only a subset of them licenses this combination (a subset that basically coincides with the final predicates appearing in implicit constructions; cf. *a1*).

b1. With regard to prepositions, it was recalled in Section 4 that *static prepositional elements* of French are massively used to introduce a *final change of relation* (and sometimes of placement), be it in presence of a verb of change of relation and placement or in combination with a simple predicate of change of placement (notion of tendentiality; see Section 2 and

(Aurnague, 2011)). Beyond French, Creissels (2006) emphasized that this practice, i.e., the use of a static marker for referring to a final change of relation (ablative vs. essive-allative), is very common among languages of the world. In contrast, the opposite strategy that would consist in resorting to the same element(s) for static location and the expression of an initial change of relation (final changes of relation being identified through specific means: allative vs. essive-ablative) is hardly ever attested (see also Pantcheva 2010).

b2. Compared with the variety of prepositional elements involved in the description of final changes of relation (and placement), virtually a *single marker* is available for expressing *initial changes of relation*, namely the preposition *de* ‘from’ (*depuis* ‘since, from’ does not primarily denote a change of relation and stands mostly outside the scope of this work; see Note 18). And even the “dynamic” use of this preposition is not restricted to the description of motion, as the change of relation it indicates is not always basic and does not systematically go with a change of placement (see Section 4). Thus we are not faced with a true motion preposition —neither a motion in the strict sense nor in the weak sense is involved— but with an element indicating the initial polarity of a change of relation whose real nature depends on the semantic content of the verb (this remark probably applies to many ablative/relative cases or adpositions, at least in other verb-framed languages).

c. Asymmetry also shows up in the coding of *deixis* or *perspective point*. *Final* verbs of change of relation and placement such as *venir* ‘to come’, *s’abouler* ‘to come’, *s’amener* ‘to come along’ or *rappliquer* ‘to come, to turn up’ need the motion to be contemplated from the landmark they introduce (Section 3). No such constraint on perspective point applies to initial predicates (cf. Note 11) and the frequent use of verbs such as *partir* or *s’en aller* ‘to go (away), to leave’ in deictic utterances is an indirect consequence of their semantic content (centering on the initial change of

relation and placement, possible implicit constructions; cf. Section 3 and (Aurnague 2015)).

d. Whereas French has a simple preposition denoting a “*prospective*” or forward oriented *change of placement* (*vers* ‘towards’), no *simple* marker is *devoted* to the introduction of a “retrospective” or backward oriented change of placement. In other words, the direction associated with a motion (change of placement) is often constructed through a prospective procedure, rather than through a retrospective one. Referring to a retrospective direction is not totally excluded but it takes on a more exceptional character and relies on complex/compound prepositions (e.g. *des environs de* ‘from the vicinity of’) or even simple markers that can sporadically play this role (e.g. *de* ‘from’, *depuis* ‘since, from’).¹⁹

e. The data analyzed in this study seem to indicate that, in French, the *number of verbs* introducing a *final* change of relation and placement is appreciably higher than the number of predicates referring to an initial change of relation and placement (moreover, final changes of relation with integrated prior motion appear to be the most widespread category of processes; cf. Section 2 and (Aurnague 2011)). To be exact, I should speak of verbs *and constructions* because this observation includes the structures that associate a verb of change of placement and a PP to describe a final change of relation and placement (notion of tendentiality: whereas the predicates of change of placement in question systematically combine with a final PP, their association with an initial PP is not always possible (Aurnague 2011)).²⁰ This numerical asymmetry is in accordance with the

¹⁹ In such cases, it is not uncommon to have simple prepositions selecting direction nouns or entity nouns that contextually identify a direction.

²⁰ Among the 51 verbs that were analyzed (20 changes of placement underlain by tendentiality and 31 changes of relation and placement) and after having removed 11 colloquial variants, we get the following distribution: 10 verbs of initial change

observations made by Creissels (2006) concerning several West-African languages which have a very limited number of verbs (sometimes only one) that are able to assign the role of source to the spatial element they govern.

f. Last, but not least, the *spatio-temporal structure of processes* of change of relation and placement (Figures 1–4) displays important differences between initial and final motions (cf. Section 2 and (Aurnague 2011)). Apart from the verbs based on the typing of the landmark (Figure 4), it thus appeared that the predicates that introduce an initial change of relation usually do not incorporate, in their semantic content, a subsequent change of placement, whereas final changes of relation can include a prior change of placement or presuppose it. In a similar and somewhat related way, whereas initial processes are centered on the change of relation and placement they denote (the two changes are concomitant), final processes rarely give rise to such a centering.

This non-exhaustive list suggests the existence of several links between the itemized phenomena. In particular, the property *f* relating to the spatio-temporal structure of processes seems to have a more fundamental status in comparison with several other observations. First, it allows us to explain property *a1* because, as we have seen (Section 3), the centering on the change of relation and placement that characterizes initial processes

of relation and placement, 21 verbs or constructions of final change of relation and placement, 9 verbs of change of placement that combine with both initial and final PPs.

Over and above the number of predicates, the occurrences of the verbs *partir* ‘to go (away), to leave’, *s’échapper* ‘to escape’, *s’enfuir* ‘to run away’, *sortir* ‘to go out’ vs. *aller + Prep* ‘to go + Prep’, *venir* ‘to come’, *arriver* ‘to arrive’, *entrer* ‘to go in, to enter’ in the analyzed part of the working corpus for the period 1880–1950 (“passé composé”/perfect; third person singular) display a clear superiority of final verb uses, as shown by the following weights: 31% (initial verbs) vs. 69% (final verbs).

(cases of typing left aside) is at the root of their systematic implicit uses and of the differences that appear, on this point, with respect to final processes. As regards the combination of a change of relation and placement and a PP with opposed polarities, it closely correlates with the existence of a possible implicit use of the verb (Section 3) so that the asymmetry between initial and final processes pointed out in *a2* indirectly ensues from *f* too.²¹

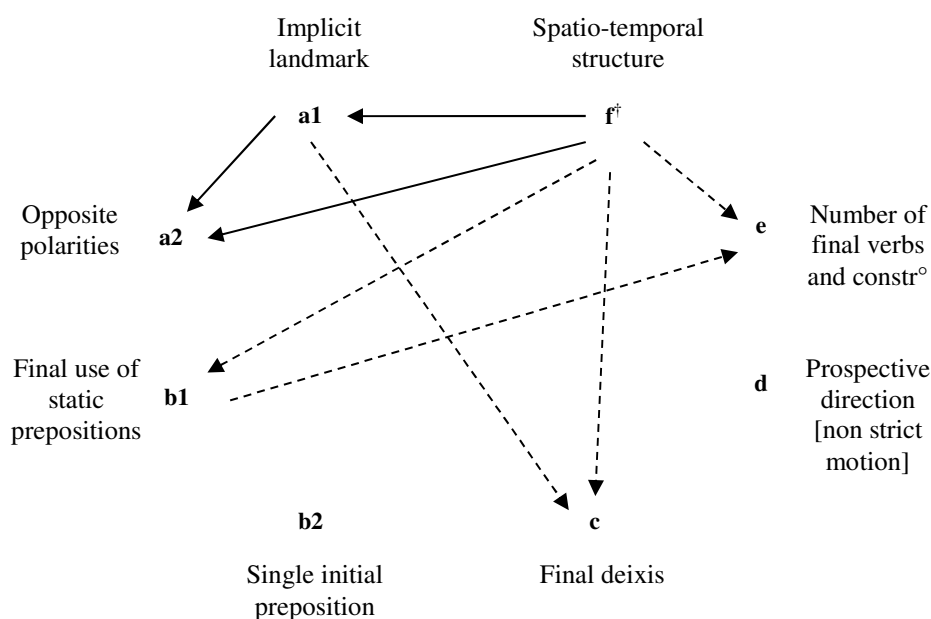
The spatio-temporal structure of motion processes and, especially, the frequent existence of a change of placement preceding a final change of relation (*f*) —coupled with the lack of a change of placement subsequent to an initial change of relation— have probably played a non-trivial part in the use of static prepositions for describing final changes of relation rather than initial ones (*b1*), as indicated in Section 4 (in synchrony, however, this reinterpretation is deeply rooted in the structures of language).

Regarding deixis, the coding of this spatial constraint by some final verbs entails that the (final) landmark from which the motion is contemplated is already known during this prior motion so that these verbs can give rise to an implicit use, as opposed to other final changes of relation with integrated motion (*a1*; cf. Section 3). In contrast, as initial processes are centered on the (initial) change of relation they denote, their implicit use is always possible (*a1*) and applies, among others, to deictic situations. So, from the implicitness criterion, it turns out that the spatio-temporal structure of changes of relation and placement makes the final coding of deixis necessary (contrary to its initial coding) and that *c* partly ensues from *f*.

Finally, though the presence of a prior change of placement (*f*) and its role in the dynamic use of static prepositions (*b1*) has to be viewed in a

²¹ The impossibility of using several final changes of relation and placement anaphorically (*a1*) —a final PP has to be present— and the related fact that the constructions associating these predicates with an initial PP are ruled out (*a2*) have a direct outcome: they increase the “weight” of final PPs in motion descriptions (in comparison with initial PPs).

diachronic perspective, it is worth noting that this property of final processes especially applies to the constructions combining a verb of change of placement and a (static) PP (tendency, see above) which, together with other final changes of relation with integrated prior motion, form the main class of motion processes of French. The spatio-temporal structure of processes seems thus to be somehow related to the numerical superiority of final verbs *and constructions* (e).



† Dotted arrows indicate partial entailment between properties.

Figure 5. Evidence for motion asymmetry and their relations

The eight properties previously listed show that the asymmetry between initial and final motions presents a variety of facets that, all together, lead to the quantitative and qualitative pre-eminence of the linguistic means —markers and constructions— involving a final change of relation and placement. As outlined, five of these properties (a1, a2, b1, c, e) seem to partly or totally follow from the spatio-temporal structure of changes of relation and placement (f; see Figure 5). With regard to *b2*, it probably results from specific properties of French (in particular, its characterization as a verb-framed language) and is likely to receive a rather

different justification.²² The property *d* on the prospective nature of the simple preposition *vers* ‘towards’ stands outside the field of pure changes of relation and placement —*vers* introduces a mere change of placement (see Section 4) —and, quite logically, cannot be derived from other items in the list.

Returning to property *f* from which, as I tried to show, most of the facets of asymmetry (listed above) ensue, I already emphasized (Aurnague 2011) that the internal arrangement of changes of relation and placement basically fits the general schema(ta) proposed in order to account for the structure of eventualities (Kamp and Reyle 1993; Moens and Steedman 1988; Smith 1991). In particular, the fact that final changes of relation (and placement) are often preceded by a change of placement —contrary to initial changes of relation (and placement) that do not incorporate a subsequent motion (cf. Section 2)— agrees with the schema of an activity or process followed by a transition/culmination (final transition schema). This observation raises the question of knowing whether the general, and perhaps universal, structure of eventualities does not itself reflect a cognitive and linguistic proclivity towards final transitions.

To sum up, the previous observations and remarks indicate that: (i) several important facets of asymmetry follow from the spatio-temporal structure of changes of relation and placement; (ii) the latter structure basically fits the general schema of eventualities; (iii) this general schema is possibly itself the consequence of a human proclivity towards final transitions or changes of relation. Thus the thorough analysis of French

²² Without going into details, the existence of a single marker *de* ‘from’ denoting a change of relation (which is not always basic and does not necessarily go with a change of placement: b2) arguably results from the typological properties of French, a verb-framed language in which changes of basic locative relation and placement are expressed by verbs, not by prepositional elements, and perhaps from a principle of economy.

linguistic data leads us to a conclusion which is *convergent* with the assumptions made in (Lakusta and Landau 2005) on the basis of psycholinguistic experiments with *English-speaking* children and adults: the “importance of goals” or “goal (path) bias” seems to be encoded in the very representation/conceptualization of motion events and possibly of eventualities in general.

6. Language, cognition and asymmetry of motion

6.1. From language structure to language use

Analyzing the expression of dynamic space in language requires a clear theoretical framework in order to identify and classify the linguistic markers of motion. This chapter therefore opened by recalling the concepts used for the characterization of motion verbs in French —change of basic locative relation and change of placement— and by going through the different categories of processes of strict (autonomous) motion that can be distinguished on that basis (Section 2). After observing the integration of verbs in implicit landmark constructions and their association with a spatial PP of opposite polarity (Section 3), the prepositions appearing in motion descriptions of French were also analyzed in the light of changes of relation and changes of placement (Section 4). The main properties of asymmetry of motion in French were then summed up while trying to determine their possible links (Section 5). The contrasts between initial and final changes of relation and placement in terms of spatio-temporal structure proved to be a fundamental parameter which totally or partly conditions several of the manifestations of asymmetry of motion in French.

Although asymmetry cannot be restricted to the sole importance of goal or goal bias, a significant number of the properties highlighted show

that French provides a greater set of linguistic items to refer to final displacements, leading, quite often, to sharper descriptions of final spatial changes compared with initial ones: final use of many static prepositions (see property *b1* in Section 5), final deixis or perspective point (c), prospective direction (d), number of final verbs and constructions (e).

While this quantitative and qualitative pre-eminence of linguistic means available for referring to final changes of relation and placement clearly appeared in the previous observations, I barely touched on the issue of the *number of uses or occurrences* of final markers in French speakers' productions (see Note 20 on verbs in written data). The fact that speakers describe motion events more frequently through final changes of relation has often been highlighted by psycholinguistic studies (Lakusta and Landau 2005; Regier and Zheng 2007) and it is undoubtedly related to the former question of the pre-eminence of final markers in the very structures of language, without it being possible to ascertain in which direction the possible causal link goes.

Moreover, one may wonder what exact role language plays in the emergence of motion asymmetry in general, and in goal bias in particular. *Cross-linguistic evidence* of this phenomenon as well as its anchoring in the general schema of eventualities in language and cognition argue in favor of the ascendancy of the latter (cognition) over the former (language) in this specific domain. However, should we therefore dismiss any role of language in the emergence of motion asymmetry, if the linguistic properties brought to the fore are the mere reflection of a general cognitive pattern? To conclude this chapter, I put forward a pragmatic principle governing static and dynamic descriptions of space in language which, I believe, is likely to have played a part both in the greater resort to final markers in speakers' productions and in the "co-shaping" of goal bias by language and cognition.

6.2. Principle of positive/current localization

In his work on spatial prepositions, Vandeloise regularly used the notions of “search for the target” and “search domain of the target” (e.g. Vandeloise 1987, 1988; see also Langacker 1987). These notions remind us that the prime function of spatial markers —prepositions, postpositions, cases, verbs, etc.— is to make possible the relative localization of a target with respect to a landmark. In a situation in which Marie is asking Max, who is in the lounge, about the location of a target (e.g. Luc, the bag), the latter’s answer can be: *Il n’est pas ici/dans le salon* ‘He/It is not here/in the lounge’. This negative answer reduces the search domain of the target but it is only “cooperative” if Max is not aware of the current location of the target. If this is not the case (i.e., if Max knows the current location), he would have had to provide Marie with the corresponding “positive” information (e.g., *Il est au grenier* ‘He/It is in the attic’). This phenomenon rests on a “principle of (preference for the) positive/current localization of the target”²³ and can be seen as an application to the spatial domain of Grice’s (1975) “maxim of quantity” (especially the first submaxim of quantity). This principle is not restricted to static descriptions but also applies to motion eventualities. Thus it leads us to favor the recourse to final changes of relations and placement (e.g. verbs of final change of relation and placement, predicates of change of placement + final PP, initial verbs combined with final PPs) inasmuch as they denote a change to a positive/actual localization, as opposed to initial changes of relation which indicate that a localization is no longer valid (negation of a basic locative relation). Going back to the previous example,

²³ The “positive” nature of the spatial relation is not always sufficient and it is indeed its current/valid character which matters, as the example in the ‘imparfait’/imperfect *Il était ici/dans le salon il y a un instant* ‘He/It was here/in the lounge a few minutes ago’ shows: when Max knows the current location of the target, this answer is as uncooperative as *Il n’est pas ici/dans le salon*.

a utterance such as *Il est parti/a disparu (du salon)* ‘He left/It disappeared (from the lounge)’ will be pragmatically less cooperative and informative than the sentence *Il est parti/allé au grenier* ‘He left for/went to the attic’ (or *Luc l’a monté au grenier* ‘Luc carried it up to the attic’ when speaking of the bag), assuming of course that Max is aware of Luc’s destination.

The concept of “search for the target” and the principle of “(preference for the) positive/current (or future) localization” seem thus to play an important part in the linguistic tendency to describe motions by means of final changes of relation. As indicated, they have the advantage of applying to both dynamic and static descriptions, that is to say to the domain of space as a whole.²⁴ Moreover, they help us to integrate the interactional and pragmatic dimension of spatial utterances (which is usually missing from psycholinguistic experiments), a dimension that can be articulated with the strict semantic content —geometrical and functional— of spatial markers (Aurnague and Vieu 1993).

In line with the tradition of studies on memory recency (Schiffrin 1973), Regier (1996) proposed a computational model of how children learn spatial terms in which particular attention to the endpoint of a motion is suggested to result from the higher saliency and accessibility of this phase of the (sequentially) perceived “event” and of the corresponding spatial configuration/relation. Lakusta and Landau (2005) emphasize that the memory processing thus highlighted constitutes an argument in favor of a *cognitive* representation of events (not only motion events) that gives greater importance to the coding of “goals”. They also indicate that intentionality and animate entities probably play an important part in the

²⁴ The preference for current or future information is very likely to be a more general phenomenon operating in other domains than space proper (through Grice’s maxim of quantity). However, here the discussion is confined to the spatial domain.

early emergence of this conceptualization of events (this assumption is taken up in (Regier and Zheng 2007) in relation with motion description). The observations made in these different studies are often impressive and seem to partly support the idea of a cognitive and extra-linguistic nature of such a perspective on events and of several important factors having possibly led to it. But does this mean that the influence or the contribution of language to this cognitive structuration of events (notably spatial ones) should be disregarded? Could it not be the case that the proclivity to preferentially encode final changes of relation could result from the combined effect of language and other cognitive (non-linguistic) modalities? To my mind, this possibility has not to be dismissed. That is what I tried to suggest by showing how the concept of search for the target and the principle of (preference for the) positive/current localization can condition the linguistic descriptions of space. This scenario seems all the more plausible since, as we have seen, the asymmetry between initial and final changes of relation (and placement in our case) is deeply rooted in the markers and constructions of language. As a provisional assumption, I would thus say that linguistic means and tools have possibly contributed to strengthen a phenomenon/mechanism initially based on cognitive and non-linguistic factors.

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Appendix

Table 2. Verbs and constructions analyzed in the corpus drawn up from the textual base Frantext (2007–2008 categorized version)

Verbs and constructions	Forms	Main analysis Periods and number of occurrences (including non-spatial uses)	Additional analysis Periods and number of occurrences (including non-spatial uses)
√ Independent initial change of relation			
<i>Partir</i> ‘to go away, to leave’	“passé composé”/perfect third person singular	[1880–1910] + [1940–1950] 309 oc.	[1951–1970] 188 oc.
√ Extended initial change of relation			
<i>S’échapper</i> ‘to escape’	“passé composé”/perfect third person singular	[1880–1950] 23 oc.	
<i>S’enfuir</i> ‘to run away’	“passé composé”/perfect third person singular	[1880–1950] 42 oc.	
√ Inclusion/containment-type initial change of relation			
<i>Sortir</i> ‘to go out’	“passé composé”/perfect third person singular	[1880–1930] 218 oc. [1950–1996] 219 oc.	
√ Final change of relation with integrated prior motion			
<i>Aller + Prep</i> ‘to go + Prep’	“passé composé”/perfect third person singular	[1880–1930] + [1937–1950] 303 oc.	
<i>Venir</i> ‘to come’	“passé composé”/perfect third person singular	[1880–1896] + [1943–1950] 625 oc.	
<i>Monter (+ Prep)</i> ‘to go up (+ Prep)’	“passé composé”/perfect third person singular	[1880–1950] auxiliary <i>être</i> ‘be’ 134 oc. [1830–1950] auxiliary <i>avoir</i> ‘have’ 120 oc.	

<i>Descendre</i> (+ <i>Prep</i>) 'to go down (+ <i>Prep</i>)'	"passé composé"/perfect third person singular	[1880–1950] auxiliary <i>être</i> 'be' 162 oc. [1830–1990] auxiliary <i>avoir</i> 'have' 94 oc.
<i>(S')avancer</i> (+ <i>Prep</i>) 'to advance, to go forward (+ <i>Prep</i>)'	"passé composé"/perfect third person singular	[1830–1950] auxiliary <i>être</i> 'be' 49 oc. [1830–1950] auxiliary <i>avoir</i> 'have' 34 oc.
<i>(Se) reculer</i> (+ <i>Prep</i>) 'to (move) back (+ <i>Prep</i>)'	"passé composé"/perfect third person singular	[1830–1950] auxiliary <i>être</i> 'be' 80 oc. [1830–1950] auxiliary <i>avoir</i> 'have' 46 oc.
√ Final change of relation with presupposed prior motion		
<i>Arriver</i> 'to arrive'	"passé composé"/perfect third person singular	[1880–1905] + [1939–1950] 581 oc.
<i>Aboutir</i> 'to end up'	auxiliary + <i>abouti</i> any verb form + <i>dans</i> any verb form + <i>sur</i>	[1880–1950] 287 oc. (partly analyzed) 31 oc. 8 oc.
<i>Accéder</i> 'to reach, to get to'	any verb form	[1880–1950] 436 oc. (partly analyzed)
<i>Parvenir</i> 'to reach, to get to'	auxiliary + <i>parvenu(e)(s)</i>	[1880–1950] 1538 oc. (partly analyzed)
√ Inclusion/containment-type final change of relation		
<i>Entrer</i> 'to go into, to enter'	"passé composé"/perfect third person singular	[1880–1950] 444 oc.